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# GRAND CANARY:

ITS CLIMATE AND SPRINGS.

BY

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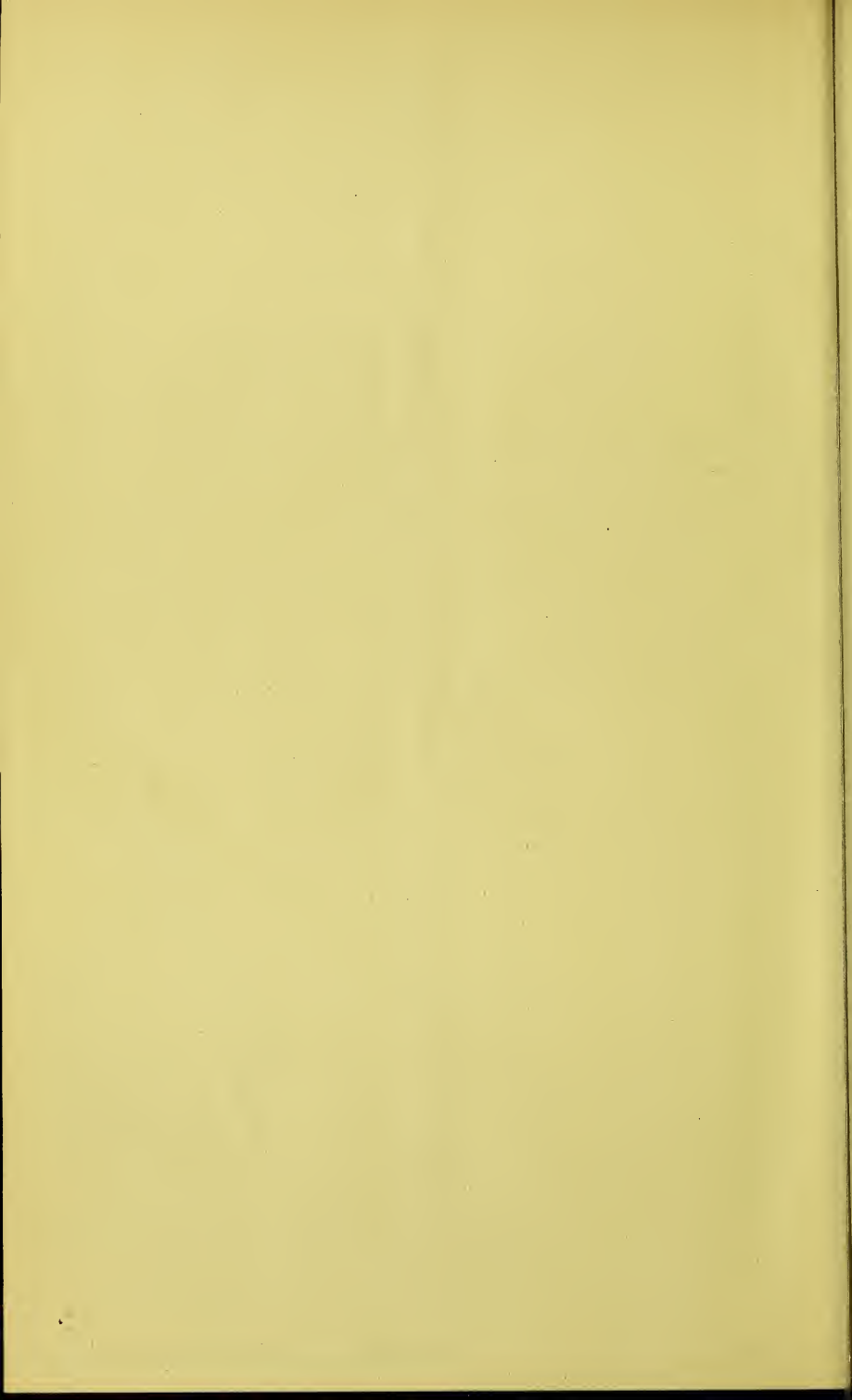
*Las Palmas, Grand Canary ; Highfield, Windermere.*



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# GRAND CANARY:

## ITS CLIMATE AND SPRINGS.

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*Read in the Section of Pharmacology and Therapeutics at the Annual Meeting of the British Medical Association held in Leeds, August 1889; by J. Cleasby Taylor, Las Palmas.*

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MR. PRESIDENT AND GENTLEMEN,—

Within the last few years so much has been written about the Canary Islands as winter health resorts, that I venture to lay before you a few of the results of meteorological observations, I recorded in Las Palmas, Grand Canary, from October, 1888 to May, 1889.

The Island of Grand Canary is situated one hundred and twenty miles from the north-west coast of Africa, and about fourteen hundred from Lands End.

The land around the coast, unless brought under irrigation, is destitute of vegetation. Leaving the coast, the land becomes more fertile and beautiful as it continually and gradually rises to the centre of the island, where the peaks reach over the height of six thousand feet.

Las Palmas, the capital, situated on the north-east part of the island, possesses a south-east aspect. Within the last few years, on account of the sheltered position and safe anchorage, it has developed as a great port of call for steamers. The port is four miles from the town, with which it is connected by an almost level road.

Penetrating into the interior from Las Palmas are three good roads. These run to the south, to the centre, and to the northwest, and afford opportunities for riding and driving. From these, innumerable bridle paths branch, and lead through beautiful and varied scenery.

Similar to many other climates, that of Las Palmas is greatly influenced by the direction and force of the winds.

As will be observed, the prevailing wind last winter was from the north, and the stronger the force of this wind, the atmosphere was

#### Wind from the Northern Direction.

	Number of Observations.	Direction of Wind.			Total.
		NW.	N.	NE.	
9 a.m. ...	232	16	44	87	147
9 p.m. ...	233	25	62	77	164

cooler and the sky more cloudy. To illustrate this I have given three sets of days, December 14th to 17th, April 3rd and 13th, May 14th and 16th.

#### Effect of Force of Wind on Sunshine and Temperature.

	Wind.		Clouds.	Sea.	Sunshine amount of.	Temp. in sun. Day's average.	Temp. in shade. Day's average.
	Direct'n.	Force.					
Dec. 14th, 1888						° F.	° F.
9 a.m.	N	2	Stratus	Mod.	2 hours	66.9	64.75
9 p.m.	N	2	Clouded	Mod.	0 min.		
Dec. 15th, 1888							
9 a.m.	NNE	3	Nimbus	Rough	2 hours	65.0	61.25
9 p.m.	N	1	Nimbus	Rough	0 min.		
Dec. 16th, 1888			(raining)				
9 a.m.	N	0	Nil	Mod.	7 hours	72.6	63.25
9 p.m.	WNW	2	Nil	Mod.	0 min.		
Dec. 17th, 1888							
9 a.m.	NNW	1	Nil	Calm	9 hours	72.5	65.25
9 p.m.	W	2	Nil	Calm	30 min.		
April 3rd, 1889							
9 a.m.	NE	3	Cumuli small	Rough	2 hours	67	62.5
9 p.m.	NE	3	Cumuli small	Rough	10 min.		
April 13th, 1889							
9 a.m.	NE	0	Nil	Calm	11 hours	77	62.5
9 p.m.	NW	1	Nil	Calm	10 min.		
May 14th, 1889							
9 a.m.	NE	2	Cumuli small	Calm	0 hours	66	64.7
9 p.m.	NE	2	Cumuli small	Calm	40 min.		
May 16th, 1889							
9 a.m.	N	0	Nil	Calm	8 hours	80	68.0
9 p.m.	N	0	Nil	Calm	50 min.		

I estimated the force of the wind very roughly according to Beaufort' scale. Being nothing more than pure guesswork, I only consider these figures as approximate.

Another class of winds are those from the east. These as you may notice prevailed chiefly through the day. They did not blow

**Wind from Easterly Direction. E. (ENE. ESE.) SE.**

	Number of Observations.	Wind.		Total.
		SE.	E.	
9 a.m. ...	232	19	29	48
9 p.m. ...	233	8	3	11

continuously or strongly, were accompanied by fine clear weather, and were the most pleasant of breezes.

**Effect of East Wind on Sunshine and Temperature.**

	Wind.		Clouds.	Sea.	Sunshine amount of.	Temp. in sun. Day's average.	Temp. in shade. Day's average.
	Direction.	Force.				°F.	°F.
Jan. 27th, 1889							
9 a.m.	E	0	Nil	Calm	9 hrs.	79	63.5
9 p.m.	Nil	Nil	Nil	Calm			
Feb. 17th, 1889							
9 a.m.	E	0	Cumuli small	Calm	10 hrs. 20 min.	82.5	63.5
9 p.m.	W	0	Nil	Calm			

Another class are those from the south. They are most prevalent from July to October. Like the preceding they chiefly prevailed through the day, were accompanied

**Wind from Southerly Direction.**

	Number of Observations.	Wind. S (SSE)
9 a.m. ...	232	9
9 p.m. ...	233	1

by fine clear weather, but differed in the amount of moisture they contained. You will see from the examples given that the humidity is out of all proportion to that usually experienced,

**Effect of South Wind on Humidity.**

	Wind.		Clouds.	Sea.	Sunshine	Humidity Sat-100.	Temp. in shade. Day's average.
	Direction.	Force.					°F.
Oct. 13th, 1888							
9 a.m.	SSE	...	Nil	Calm	Uninterrupted	74	73.0
9 p.m.	W	...	Nil	Calm		88	
Oct. 15th, 1888							
9 a.m.	SSE	5	Nil	Rough	Uninterrupted	86.5	76.9
9 p.m.	SE	0	Nil	Rough		81.5	

but when this wind blew from a quarter a few points to the east, it lost this excess, as may be seen by the following examples :—

### Effect of ESE Wind on Humidity.

	Wind.		Clouds.	Sea.	Sunshine.	Humidity.	Temp. in shade. Day's average.
	Direct'n	Force.					
Oct. 25th, 1888							
9 a.m.	ESE	0	Nil	Calm	9 hours	65	72°5°F.
9 p.m.	Nil	Nil	Nil	Calm	...	66	
Nov. 22nd, 1888							
9 a.m.	ESE	2	Nil	Calm	8 hours	62	70°0°F.
12 noon	...	...	...	...	20 min.	66	
3 p.m.	...	...	...	...	...	58	
9 p.m.	W	0	Nil	Calm	...	61	
Nov. 21st, 1888							
9 a.m.	ESE	2	Nil	Calm	9 hours	67	68°5°F.
12 noon	...	...	...	...	40 min.	60	
3 p.m.	...	...	...	...	...	61	
9 p.m.	W	0	Cumuli small	Calm	...	68	

The last winds of which I have to speak are the westerly.

### Wind from Westerly Direction.

	Number of Observations.	Wind.		Total.
		SW	W	
9 a.m. ...	232	0	7	7
9 p.m. ...	233	1	32	33

These were usually recorded in the evening. They were land breezes and sprang up at sunset after southerly or easterly winds. The northerly winds after sunset rarely veered more than a few points to the westward.

“No wind” of any description was recorded twenty-one times at 9 a.m. and twenty-four times at 9 p.m. (232 and 233 observations respectively). Often on these twenty-one occasions, a breeze from the east or north-east would spring up during the day and die down towards evening. Rarely it may be said, was there a day without a breeze ; this has its advantages and disadvantages.



Some idea of the strength and continuity of the wind may be gathered by observing for the same period the statistics of the "state of the sea."

#### State of Sea.

	Observations.	Calm.	Moderate.	Rough.
9 a.m.	233	151	73	9
9 p.m.	233	144	79	10

I recorded the temperature of the sea as near noon as possible, in never less than twelve feet of water and at a depth of two feet from the surface. The temperature never fell lower than  $64.5^{\circ}\text{F}.$ ; twice it fell markedly after a strong continuous north-east wind, and did not rise again for ten or twelve days. The average for 155 observations (October to May) was  $67.8^{\circ}\text{F}.$

The commonest form of clouds observed, were cumuli.

The Rainfall during last winter was small in amount, but unusually spread over the whole winter.

During 233 days,  
Rain occurred on 73 days (6.3 in.)

{ Night 55 occasions (3.7 in.)  
{ Daytime 43 occasions (2.6 in.)

1888—1889.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May
Amount.....	in. '055	in. 1'105	in. 1'555	in. 2'075	in. '775	in. '150	in. '330	in. '250

You will notice that rain was recorded as falling on forty-three occasions during the daytime, with an amount of 2.6 inches. This indicates how trifling must have been the showers, and of what short duration, as very rarely, did the rain approach a drizzle in character. Last winter differed from the winter before, when very little rain fell till the middle of February. Through summer and autumn hardly any rain falls.

The amount of Sunshine recorded through last winter shews

#### Sunshine.\*

1888—1889.	Oct.†	Nov.	Dec.	Jan.	Feb.	Mar.	April	May
Amount.....	H. 122	H. 166	H. 129	H. 137	H. 167	H. 193	H. 140	H. 212

\* Recorded by Jordan's Sunshine Recorder.

† Recorded from 18th of October only.

that the average daily amount from October to May, 225 days, was five hours fifty minutes. From my experience, and what I can gather from other statistics, I should say that this was below the average. It was the first time the amount had been recorded by an instrument, and therefore I cannot speak definitely. On three occasions only was no sunshine recorded.

The Barometric readings show for the same period very little variation. The highest reading recorded was 30.68 inches; the lowest 29.75 inches; the variation being not even one inch.

I recorded the maximum and minimum shade temperature by self-registering thermometers. The following are the 'means' for the various months.

#### Mean Shade Temperatures, Las Palmas.

1888—1889.	Oct.*	Nov.	Dec.	Jan.	Feb.	March.	April.	May.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
Maximum .....	78.0	72.8	68.7	65.2	66.5	66.7	65.8	69.7
Variation .....	10.2	9.2	7.9	7.8	8.7	7.2	7.0	7.6
Minimum .....	67.7	63.6	60.8	57.4	57.8	59.5	58.8	62.1

\* Recorded during last twenty days only.

The temperature fell regularly to a low point twice in the twenty-four hours, just after sunset, and before sunrise; the latter fall being lowest. The shade temperature never fell lower than 53.5°F.; the lowest mean minimum shade temperature for the months was 57.4°F. for January.

Comparing the mean shade temperatures for three winters you will see they are very similar. The total averages varying no more than 1°F.

#### Comparison of Three Years—1884, 1886-7, 1888-9. Mean Shade Temperature.

	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	Average
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
1884 .....	67.18	64.7			62.1	64.2	65.2	64.67
1886-7 .....	65.9	62.36	60.75	60.55	63.7	65.48	67.36	63.72
1888-9 .....	68.2	64.7	61.3	62.1	63.1	62.3	65.9	63.95

The readings of a thermometer exposed to the sun and wind, and free from any other external influences, show the following as the mean temperatures for the various months :

### Temperature of Air in Sun and Wind.

1888-9.	Oct.*	Nov	Dec.	Jan.	Feb.	March.	April.	May.
	°F.	°F.	°F.	°F.	°F.	°F.	°F.	°F.
9 a.m. ....	83°0	76°1	70°4	66°1	69°8	71°5	67°8	71°2
12 noon .....	83°6	77°6	74°5	69°6	74°5	74°5	71°4	74°6
3 p.m. ....	80°7	74°9	69°7	68°5	72°8	72°3	68°9	73°0
9 p.m. ....	71°5	66°4	63°6	60°7	60°3	62°0	61°1	64°3
Mean .....	79°7	73°7	69°5	66°2	69°6	70°0	67°3	70°7

\* Recorded during last twenty days only.

I recorded the temperatures of the dry and wet bulb thermometers, and from these, by means of Glaisher's tables, calculated the following humidities :

### Humidity (Saturation=100). Means.

1888—1889.	Oct.*	Nov.	Dec.	Jan.	Feb.	March.	April.	May.
9 a.m. ....	71	65	68	69	63	67	65	65
12 noon .....	63	62	63	64	59	63	63	63
3 p.m. ....	55	64	64	64	58	67	59	63
9 p.m. ....	78	69	71	71	69	69	69	71
Mean .....	67	65	66	67	62	67	64	65

\* Recorded during last twenty days only.

In order to examine more thoroughly the climatic conditions of Las Palmas, I have, as you may notice, compared certain of them with those of other seacoast health resorts (Cairo being an exception).

### Mean Shade Temperatures.

Towns.	Lat.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	
		°F	°F	°F	°F	°F	°F	°F	
Nice .....	43° 42'	53°8	48°6	47°1	46°2	51°8	58°1	64°2	
Mentone ...		55°4	50°6	49°5	50°4	51°5	58°1	64°4	3 yrs.
San Remo ...	43° 48'	53°6	48°0	47°1	50°7	52°1	57°4	63°9	6 "
Ajaccio .....	41° 52'	57°5	53°1	54°4	53°1	54°5	58°3	64°6	9 "
Palermo.....	38° 18'	59°9	54°1	51°6	52°0	54°5	58°8	65°5	20 "
Malta .....	35° 53'	62°6	57°8	55°9	54°7	57°3	60°3	67°0	6 "
Algiers .....	36° 46'	63°3	57°5	55°7	56°5	57°9	62°4	67°2	
Alexandria ..	31° 11'	69°3	60°4	56°1	58°5	60°8	65°8	71°6	
Cairo .....	29° 59'	65°3	56°6	52°9	54°9	60°4	69°8	74°6	
Madeira.....	32° 23'	65°2	62°2	61°2	61°1	60°8	61°6	64°8	6 "
Oratava .....	28° 30'	66°7	63°6	60°0	60°2	61°7	...	...	2 "
Las Palmas ..	28° 15'	67°0	63°9	61°0	61°3	62°9	64°0	66°1	3 "

Humidity (Saturation=100).      Mean.

	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	
Mentone .....	...	...	71	74	74	...	...	3 yrs.
Algiers.....	65	65·6	69	67·8	65·3	65·7	64·9	9 „
Madeira .....	72	70	73	73	70	...	...	6 „
Oratava 3 obs. d'y	75	84	76	74	77	...	...	1888-9
Las Palmas 4 „	65	66	67	62	67	64	65	1888-9

Rainfall in Inches.

	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	
Torquay .....	9·40	3·31	1·26	1·49	4·33	1·70	1·90	1888-9
Ventnor .....	4·07	1·75	1·28	1·47	1·88	2·10	2·07	1888-9
Mentone .....			1·87	2·19	5·23			3 yrs.
Ajaccio .....	4·40	3·36	2·79	1·97	2·26	1·44	1·94	9 „
Palermo .....	3·26	3·52	2·29	2·36	2·65	1·55	1·03	20 „
Malta .....	3·34	3·27	2·60	1·57	1·82	·810	·100	6 „
Alexandria .....	·600	3·80	3·90	·900	·600	·040	·020	
Madeira .....	5·66	4·26	6·34	3·00	2·70	1·57	1·08	6 „
Oratava .....	·513	3·994	2·203	1·430	1·174			1888-9
Las Palmas .....	1·105	1·555	2·075	·775	·150	·330	·250	1888 9

Sunshine. \*

	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	
	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	Hours.	
Torquay .....	57	77	65	68	101	165	190	1888-9
Ventnor .....	26	68	62	63	111	149	163	„
Oratava .....	114	99½	107½	148	148	...	...	„
Las Palmas .....	166	129	137	167	193	140	212	„

\* Recorded by Jordan's Sunshine Recorder.

A cursory examination shews that the climate of Las Palmas compares favourably, notwithstanding the unusually bad weather experienced during last winter.

The main features of the climate are briefly :

The maximum shade temperature is low.

The minimum shade temperature is high.

The rainfall is small.

The degree of humidity is small.

And I think I may say the average amount of sunshine is high.

Against these, as disadvantages, are a varying amount of wind and dust.

With regard to the climate of other parts of the island. The east and south coasts possess a very similar climate to that of Las Palmas. Those of the north and west a more humid and cloudy

climate. The greater the altitude, the climate grows colder, more humid, more rainy, and the sky more clouded. This is more marked on the northern than southern parts of the island. From statistics before me, I find that during last winter, at a height of about 900 feet above sea level, the shade temperature averaged from 8° to 10° F. lower than in Las Palmas.

In Grand Canary there are several mineral springs surcharged with carbonic acid gas.

One spring close to Las Palmas is called Saint Catalina Water. This water is colourless, odourless, has a feebly saline taste, and a temperature of 80° F.

From its analysis

#### Analysis of Santa Catalina Water.

Chloride of Soda ... ..	424'114	grs. to gall.
Chloride of Potash ... ..	7'574	"
Chloride of Calcium ... ..	29'624	"
Bicarbonate of Lime ... ..	10'315	"
Bicarbonate of Magnesia ... ..	81'198	"
Sulphate of Magnesia ... ..	61'028	"
Silica ... ..	7'542	"
Free Carbonic Acid Gas ... ..	70'412	"

it may be classed as belonging to the muriated saline group of waters. Its constituents, compared with others of the same group,

	Woodhall.	Homburg.	Kreuznach.	Wies. baden.	Santa Catalina.
Solid ingredients grs. to gall.	1547'2	1011'0	940'06	724'57	621'39
Chloride of Soda ..	1330'0	791'5	723'83	524'97	424'11
Chloride of Calcium ..	111'0	...	133'89	37'17	29'62
Chloride of Magnesia ..	91'0	77'9	40'71	15'66	...
Bicarbonate of Lime ..	...	109'9	16'93	32'10	10'31
Bicarbonate of Magnesia ..	...	20'1	1'06	...	81'19
Sulphate of Magnesia ..	...	...	...	...	61'02
Ferrous Carbonate ..	...	4'6	1'50	'43	...
GASES. Cubic inches.					
Carbonic Acid Gas ... ..	...	448'6	...	64'16	113'3
Nitrogen ... ..	...	...	...	1'03	...

shew it is weaker, containing less solid ingredients, less chlorides of soda and calcium, and also less lime salts, and it has its magnesium salts in the form of carbonates and sulphates. Although the water may not be so strong as the others, yet it should be remembered its effect is enhanced in the warm climate. During the summer months it is much used internally, and in the form of baths by the Spaniards.



I have not time to enter into its uses, beyond saying that the indications appear to be similar to those of waters of the same group.

Another spring, ten miles from Las Palmas is called 'Fergus.' From its analysis

#### Analysis of Fergus Water.

Carbonate of Lime..	...	...	12'6	grains to the gallon.
Carbonate of Magnesia	...	...	11'7	" " "
Carbonate of Soda...	...	...	1'5	" " "
Chloride of Soda ...	...	...	5'0	" " "
Sulphate of Soda ...	...	...	1'2	" " "
Free Carbonic Acid Gas	...	...	110'0	" " "
<hr/>				
Free Albumen	...	...	0'28	per million.
Albumenoid Ammonia	...	...	'02	" "

it may be classed as belonging to the earthy and calcareous group of waters. The point of practical interest about it is its extreme purity. This is of importance from the fact of its great use as a table water, taking the place of appollinaris or other natural waters.

I have again compared this water with others of the same group.

	Fergus.	Contrexeville.	Wildungen.
Carbonate of Lime Grains to gall.	12'6	28'00	49'84
Carbonate of Magnesia "	11'7	2'45	37'45
Carbonate of Soda "	1'5	—	4'48
Chloride of Soda "	5'0	'38	'49
Sulphate of Soda "	1'2	16'52	4'76
Sulphate of Lime "	—	81'55	—
Sulphate of Magnesia "	—	2'10	—
GASES.			
Carbonic Acid Gas "	110	5.6	175'5

Near the town of Agaete (thirty miles from Las Palmas) is a spring called by the same name.

The chief characteristic of this is the amount of iron in one of its most easily assimilated forms.

#### Analysis of Water Agaete.

Silica...	...	8'8	grains to the gallon.
Ferrous Carbonate	...	10.0	" "
Carbonate of Lime	...	3'0	" "
Carbonate of Magnesia ..	...	33'5	" "
Sulphate of Soda	...	2'5	" "
Chloride of Soda	...	4'5	" "

Of this the water contains more than any of those with which I have compared it.

	Agæte.	Pyr- mont.	Orezza.	San Moritz.	Spa.	Schwal- bach.
Iron (Ferrous Carbonate) grs. to gall.	10·0	4·57	8·96	3·7	3·75	5·14
Carbonate of Magnesia       ,,	33·5	2·15	5·8	16·8	11·23	13·04
Sulphate of Soda               ,,	2·5	22·19	—	24·36	·38	·48

The water issues from the spring warm, surcharged with carbonic acid gas. This last was not determined, owing to the escape of part. The indications for its use are obvious.

During the summer the inhabitants of the island resort to the two latter springs for the sake of the baths. The accommodation at present would be found defective; and, owing to the springs being situated among the hills in the interior of the island, the baths would not be available for invalids during the winter months. The bath houses in all would be found much inferior to continental ones. For internal use all these waters are freely available in Las Palmas.

The drawback to Las Palmas, hitherto, has been the insufficient accommodation. This, however, within the last few months, has been somewhat remedied, and before winter will be remedied still further by the opening of a large hotel, built outside the town. Visitors cannot live anywhere but in or near Las Palmas, and are obliged to stay in one or other of the hotels.

Instead of enumerating those cases that might obtain benefit from a residence in the island, I will first indicate, broadly, those that from my observation are unsuitable:—

1. Cases in acute stages and far advanced in any disease, especially phthisis. The discomforts of travelling, the changed conditions of life and diet, as a rule appear to hasten the end of such cases.

2. Cases are unsuitable with whom sea air never agrees; these, whilst near the sea usually suffer from sluggish action of the portal system, with a tendency to the development or aggravation of hæmorrhoids. If, in addition, there is any cardiac weakness, then are such cases specially contraindicated.

3. Cases are unsuitable who suffer from or are liable to diarrhoea. From what I have observed this seems to be a trouble at many other

health resorts, and depends on many causes, diet, sanitation, and temperature being the chief.

4. Cases are unsuitable with whom warm weather never agrees.

With regard to the effects of the climate on phthisis and other diseases of the lungs. The best results that are obtained are with those recovering from acute affections, or in whom phthisical disease is slight.

Cases of longer standing may improve, provided they remain a sufficient length of time. A point I have often found patients lose sight of, is the longer the course of the disease, the longer time is required for improvement. In such cases hopes of a speedy recovery must necessarily be disappointed.

In advanced cases life may be prolonged, but the deprivation of home comforts, the little vitality possessed, make the result precarious, especially if such cases travel alone. I think there is nothing so sad, and from a medical point of view, so undesirable, as to see advanced phthisical cases arriving alone, scarcely able to walk, unable to do anything for themselves, greatly depressed through illness and loneliness, yearning after home-ties, steadily—perhaps swiftly—going down-hill, with only strangers to attend to them.

Asthma, chronic bronchitis, and chronic rheumatism, are often alleviated whilst residing there.

I have also seen good results obtained through residence by those suffering from malarial affections, both acute and chronic. One case of chronic malaria that was under my care for seven months, although there were occasional relapses, yet was exactly 14lbs. heavier on return to England, and even then was 56lbs. under weight.

And I have no doubt other chronic diseases, benefited by a *warm, dry climate, close to the sea*, would do correspondingly well.

Because an invalid is in a climate where it is rare that outdoor exercise cannot be obtained every day, and where the want of a fire is hardly ever felt, even on the coldest evening, it must not be taken for granted that no precautions are necessary. As great, if not greater, precaution is needed as when in England.



One rule, and without its observance no good results can be obtained, is that every invalid should be indoors at least half-an-hour before sunset, and remain indoors till the following day. The system of sleeping 'dependences' is pernicious in the extreme for invalids, their only recommendation is that the rooms are cheaper in price.

Equally to be avoided is over exertion in driving, walking, and especially riding.

Another direction in which an invalid should exercise great care is in diet. Unfortunately, as I think, in the Canary Islands, the hotel managers have adopted the fashion of those in Madeira of providing three heavy meals a day. For warm climates the French system is preferable.

It was in a great measure due to the care I took of myself that the result in my case was so satisfactory.

I went out to Las Palmas, after a subacute attack of pleurisy, with effusion, affecting both sides of the chest, and keeping me in bed for five months. When I left England, now nearly two years ago, I felt the 'rub of friction' all over my chest, as high as the third ribs; often it was distinctly audible. I was breathless, and had more or less pain. Before the end of my first winter, I could walk a distance of six miles and ascend the height of 2,000 feet within one and three-quarter hours, having previously walked the six miles down hill. This I did often, and felt none the worse. I well remember on two or three occasions being out in the evening, and invariably the 'friction' returned or was aggravated.

I have hitherto omitted any reference to the other health resorts of the Canary Islands.

Briefly, I might state, that Santa Cruz de Tenerife possesses a very similar climate to Las Palmas. It is situated on the eastern side of the island, and has a south-east aspect; but it is sheltered from the north by high hills, and this makes the place warmer and slightly more humid.

Oratava is situated on the north-west side of Tenerife. To reach it visitors have to drive a distance of twenty-four miles across the island. Its climate is influenced by the ranges of mountains that rise immediately behind the town to the height of 7,000 feet. I have

already noticed that the chief points of difference between the climates of Las Palmas and Oratava, are, that Oratava is more humid, has a greater rainfall, and less sunshine ; the country around is certainly much more beautiful, but its climate is warm, moist, and sedative, whilst that of Las Palmas is warm, dry, and stimulating, each applicable to different classes of cases.

From a clinical point of view I have noticed that asthmatic patients are very liable to be ill in Oratava, whilst the same cases keep well in Santa Cruz or Las Palmas. Some five or six such cases have come under my own observation. Chronic rheumatic patients are also liable to be worse in Oratava than on the eastern sides of the islands.

Laguna is another town in Tenerife where there is a good English hotel. It lies at the height of 2,000 feet above sea level, and six miles from Santa Cruz. It is a favourite resort during the summer and autumn, when the weather in the coast towns is warm. For invalids leaving England earlier than the commencement of October ; it is an advantageous place to remain in till the weather becomes cooler. During winter Laguna is very rainy, windy, and cold, and therefore unsuitable for residence.

I have, Mr. President and Gentlemen, attempted in this short paper to put before you some idea of the climate of Las Palmas during a winter. The winter, the statistics of which I have given you, was considered, as regards weather, an unusually bad one. I have laid before you nothing but facts, and have refrained from painting the climate in roseate hues, that seem only to give rise to illusions that Grand Canary is paradise, and there the elixir of life is to be found.

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